

A NEW SPECIES OF STENEOTARSONEMUS, AND
ADDITIONAL INFORMATION ON THE PLANT-
FEEDING HABITS OF STENEOTARSONEMUS
FURCATUS DE LEON (ACARINA)¹

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Very little is known about the food habits of tarsonemid mites. Of the forty-one species in the family Tarsonemidae known to occur in North America, twelve are definitely known to feed on the higher plants and five are definitely fungivorous. Of the remaining twenty-four species, circumstances attending their collection would suggest that five of the species probably feed on higher plants, twelve are probably fungivorous, possibly two species are parasitic on arthropod hosts and the feeding habits of five species are open to considerable question. Since it is obvious that behavioral differences and similarities often provide valuable clues for systematic alignment of species, this paper reports new information on feeding habits of two species of tarsonemid mites. It is to be noted that the new hosts here recorded are plants that are grown commercially and hence both of the mite species should be considered as potential greenhouse pests in situations where the host plants are grown.

Steneotarsonemus keiferi, new species

MALE.—Body broadly oval, broadest slightly behind main body suture. Legs short and stout, the anterior pairs subequal in size, posterior pairs both well-developed. Apodemes conspicuous and of typical design and location. Dorsum with three well-defined plates, each finely and densely punctate, the propodosomal shield trapezoidal and bearing near its lateral margins four pairs of setae; metapodosomal shield hemispherical, with three pairs of setae near its lateral margins; opisthosomal shield rectangular, with a pair of setae near posterolateral extremities. Dorsal propodosomal setae in linear longitudinal series, the third and fourth setae subequal in length but third more stout; first seta two thirds as long as third and one and one-fourth times as long as second. First dorsal hysterosomal setae slightly longer than longest propodosomals, twice as long as second and third dorsal hysterosomals which are of equal size. Dorsal opisthosomals

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slightly longer and more robust than second and third hysterosomals. First ventral propodosomal setae very small, one half as long as second dorsal propodosomals, situated one and one-half times length of seta from Y-shaped juncture of apodemes, toward middle of interapodemal area. Second ventral propodosomals only slightly longer than first setae, located near center of interapodemal areas. First ventral hysterosomals twice as long as ventral propodosomals, located on apodemes III at their anterior extremities. Second ventral hysterosomals slightly longer than setae of first pair, located on apodemes IV at about mid-length of apodemes.

Capitulum: Subcordate, as broad as long; length, 33μ ; greatest width 36μ ; dorsal setae as long as first dorsal propodosomals, ventral setae two-thirds as long. Palpi short and robust, terminal setae spinelike. Chelicerae short, needlelike; length from tips to slightly recurved and flanged bases about equal to length of third dorsal hysterosomal seta.

Legs: Legs I and II subequal in general size and segmentation; leg I with simple setae distributed as follows: femur and genu each with four, tibia with five, tarsus with three; modified setae as follows: tibia with three specialized setae located dorsally nearly in transverse alignment, the one nearest to inner margin of segment shortest and peglike, beside it a slightly longer capitate seta, beside capitate seta a slightly longer, tapering, peglike seta; four stout, curved, blunt setae on tarsus, one short, stout, peglike seta located dorsally near base of segment, a similar seta ventral in position near apex; tarsus subtended by a large disclike empodium and a stout curved claw. Leg II with simple setae distributed as follows: femur and genu each with three, tibia and tarsus each with four; two short, stout sensory pegs near base of tarsus, the segment subtended by two stout, curved claws and a broadly circular empodium. Leg III with simple setae as follows: femur with one, genu with three, tibia and tarsus each with four; one stout lanceolate seta located ventrally at apex of tarsus, this segment subtended by two stout, curved claws between and beyond which projects broad circular empodium. Leg IV robust, coxa with one ventral seta as long as segment; femur with outer margin strongly convex, inner margin with truncated projection at midlength of segment and bearing a short, stout, dorsal seta, one dorsal seta near outer margin at mid-segment, one ventral seta near inner margin at apex of segment; tibia slightly longer than broad, outer margin straight, inner margin slightly concave, with one stout spiculate seta twice as long as segment located ventrally near apex of segment, one dorsal peglike seta with length equal to width of segment situated near outer apical margin; tarsus very small, bearing three small setae, two of which are ventral, one dorsal; leg terminates with a strong, stout, curved claw.

Genital papilla: Length, 32μ ; width, 32μ ; subcordate, with a pair of short setae near lateral margins at posterior fourth of papilla; pregenital papilla conspicuous, heavily sclerotized, located the width of coxa IV anterior to anterior margin of genital papilla.

Measurements: Length from tips of palpi to apex of genital papilla, 219μ ; main body suture to apex of genital papilla, 120μ ; greatest width of body, 117μ .

FEMALE.—Body broadly oval, broadest at mid-length. Pseudostigmatic organs ovoid with acuminate apices, pedicel as long as expanded distal portion; situated laterally between and slightly above adjacent bases of coxae I and II in recessed groove overhung by dorsal shield of propodosoma. Apodemes strong and conspicuous, apodemes I, II and transverse apodemes clearly delineating the interapodemal areas of propodosoma; apodemes III and IV distinct, posterior median apodeme weak. Dorsal shield of propodosoma trapezoidal, well-defined and punctate as in male, with a pair of small setae at anterolateral extremities, a pair of stout setae as long as genu I located near posterior margin of shield, separated from each other by distance equal to three times length of seta. Stigmal openings conspicuous, located on lateral margins of dorsal shield of propodosoma, the length of first dorsal propodosomal seta behind these setae. Dorsum of hysterosoma divided transversally to form four distinct segments, the first segment with a pair of humeral and a pair of dorsocentral setae, second segment with a pair of dorsocentrals, third segment with a pair of dorsolaterals and a pair of dorsocentrals, fourth segment with a pair of dorsolateral setae; all dorsal hysterosomal setae nearly equal in length except humerals which are twice as long. Ventral propodosomal setae minute, the first pair located in anterior fourth of interapodemal area, the second pair located adjacent to apodemes II at their mid-length. Ventral hysterosomal setae one and one-half times as long as ventral propodosomals, the first pair located on apodemes III, the second on apodemes IV; one pair of small setae near apex of hysterosoma.

Capitulum: Subcordate with posterior margin rounded truncate; length, 35μ ; greatest width, 36μ . Dorsal setae slightly longer and stouter than ventral setae. Palpi short and stout, subterminal seta short, tapering, peglike. Chelicerae needlelike, one half as long as capitulum, their outward curved bases expanded.

Legs: Anterior pairs robust, subequal in size and design. Leg I with simple setae distributed as follows: four each on femur and genu, eight on tibiotarsus; specialized setae as follows: two short, stout, lanceolate setae and four long, curved setae on apical half of tibiotarsus; one short peglike, one capitate and one long peglike setae arranged in transverse row, dorsally at basal fifth of tibiotarsus and one dorsal lanceolate seta at basal fourth of segment; tibiotarsus subtends a large subcircular empodium and a strong curved claw. Leg II with simple setae distributed as follows: three each on femur and genu, four each on tibia and tarsus; modified setae on tarsus only, a stout, peglike seta near base, two stout conical setae, one located dorsally at basal third of segment the other ventrally at apex; tarsus subtends two large, spreading, curved claws between and beyond which projects a large subcircular empodium. Leg III robust with simple setae distributed as follows: three on telofemur, four each on tibia and tarsus; one stout, conical seta located ventrally at apex of tibiotarsus, this segment subtending two large, curved, spreading claws between and beyond which projects a large subcircular empodium. Leg IV coxae and trochanters small and without setae; third segment seven times as long as broad, with two simple setae the distal seta one half as long as segment;

fourth segment one third as long as third segment, the stout, spiculate subterminal seta nearly twice as long as segment, terminal seta long and slender, as long as leg IV.

Measurements: Tips of palpi to apex of opisthosoma, 250 μ ; tips of palpi to main body suture, 98 μ ; greatest width of body, 146 μ .

HOLOTYPE: Male, Sharp Park, San Mateo County, California, January 14, 1957, W. Davis, on *Odontoglossum* orchid (hybrid).

ALLOTYPE: Female, same data as holotype.

PARATYPES: Twenty-six males, thirty-five females with same data as holotype.

LOCATION OF TYPES: Holotype, allotype, fifteen males and twenty females of paratype series deposited in the Snow Entomological Museum, University of Kansas. Six males and ten females deposited in the collection of the Bureau of Entomology, California State Department of Agriculture, Sacramento, California. Five males and five females of paratype series deposited in the United States National Museum, Washington, D. C.

This species has a close morphological resemblance to *Steneotarsonemus furcatus* De Leon and *S. pallidus* (Banks) from which males may be distinguished most readily by the chaetotaxy of leg IV. The single collection from which the species is now known was sent to me by H. H. Keifer of the Bureau of Entomology, California State Department of Agriculture. Mr. Keifer has communicated the information that the mites were reported damaging the host orchid, though the significance and type of damage was not known to him. The species is named to honor Mr. Keifer and thus in a small way serve to recognize the fine cooperation and encouragement that the present author and many students of acarology at the University of Kansas have received from him for many years.

Steneotarsonemus furcatus DeLeon

Since the publication of the original description of *S. furcatus* by DeLeon in 1955 in which this mite species was clearly identified as feeding on an ornamental grass, *Paspalum* sp., further host associations have not been reported. It is of considerable interest that a second green plant host is now known to be damaged by this mite. Several specimens were sent to me by A. E. Pritchard (University of California) with a notation that a report had been received that severe infestations had been discov-

ered in greenhouse-grown maranta plants. The mites were apparently causing a severe distortion of leaf growth giving a stunted appearance to the infested plants. This information was later confirmed by H. H. Kiefer (California State Department of Agriculture) who had received a similar report.

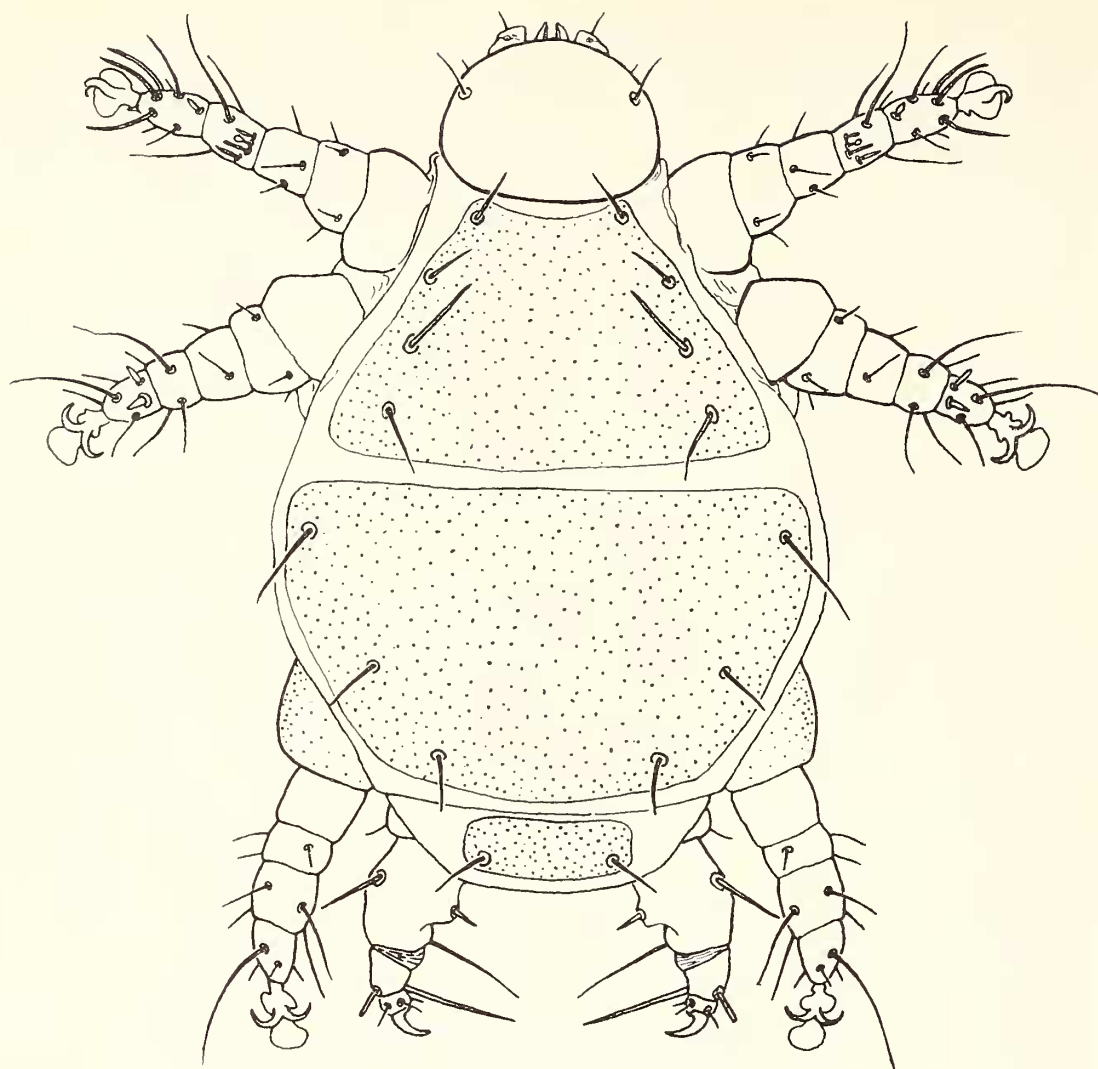
The first collections that I received were taken by an unidentified collector from *Maranta leuconeura* var. *Kerchoveana*, originally grown in Buena Park, Los Angeles County, California but intercepted in the city of Los Angeles on August 26, 1953. Subsequently several specimens collected by D. H. Byers from *Maranta leuconeura* at Buena Park on September 4, 1953 were sent to me for identification.

Most of the species of tarsonemid mites that are definitely known to feed on the higher plants seems to show a high degree of host specificity. Notable exceptions are *Steneotarsonemus pallidus* and *Hemitarsonemus latus*. Both of these species have long lists of plants that apparently are suitable hosts, however none of the included hosts are grasses. Several species of *Steneotarsonemus* show a definite predilection for various species of Gramineae, some apparently being restricted to a single host species and others feeding on several kinds of grasses. *S. furcatus* is therefore the first tarsonemid species for which a grass and a non-grass plant apparently serve as suitable hosts.

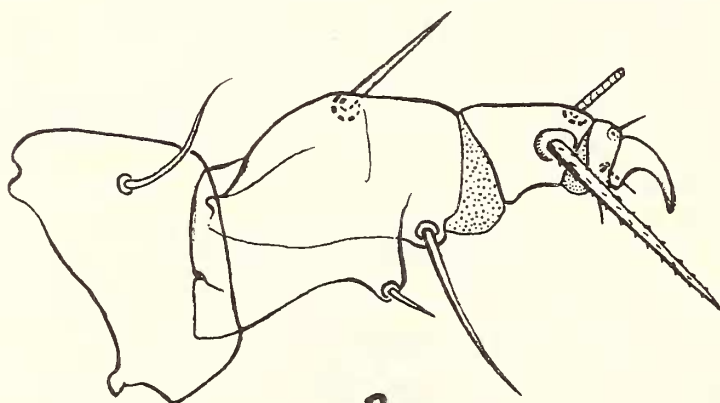
With this added bit of information, the somewhat paradoxical situation noted by Beer (1954) that within the genus *Steneotarsonemus* there was a sharp delineation of species groups based upon food plant preferences can be reconsidered. In the matter of host plant selection, at least, the members of the genus *Steneotarsonemus* now seem to consist of several species of grass-feeders, several non-grass feeders and this one species that feeds on both types of green plants.

LITERATURE CITED

- BEER, R. E. 1954. A revision of the Tarsonemidae of the Western Hemisphere. Univ. Kansas Sc. Bull. **36**: 1091-1387.
DE LEON, D. 1956. Four new Acarina in the family Tarsonemidae. Florida Ent. **39**: 105-112.

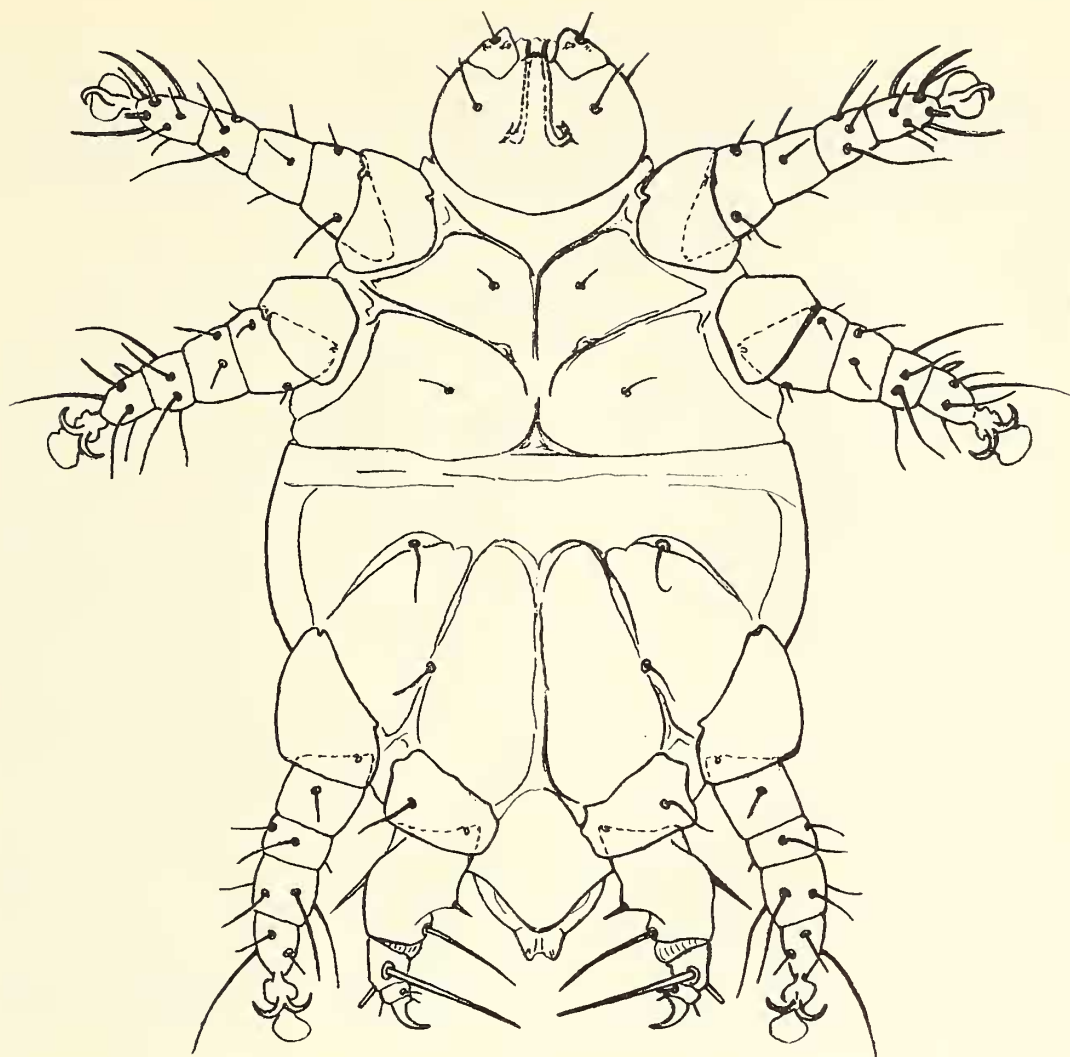


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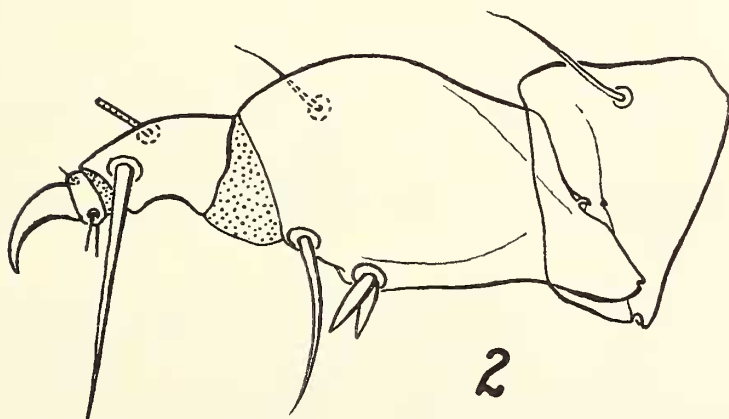


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Fig. 1. *Steneotarsonemus keiferi*, new species, male, dorsal aspect.
Fig. 2. *S. keiferi*, n. sp., male leg IV in ventral aspect.



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Fig. 1. *Steneotarsonemus keiferi*, new species, male, ventral aspect.
Fig. 2. *S. furcatus* DeLeon, male leg IV in ventral aspect.